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TIME EFFECTS ON THE CREATIVE WRITING
OF SIXTH GRADE CHILDREN

by



PAUL PEEL, JR.

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF EDUCATION

DEPARTMENT OF ELEMENTARY EDUCATION

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The undersigned certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled "Time Effects on the Creative Writing of Sixth Grade Children" submitted by Paul Peel, Jr. in partial fulfilment of the requirements for the degree of Master of Education.

ABSTRACT

The purpose of this study was to examine the effects of varying amounts of time upon the creative writing product as measured by the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing. It also sought to determine whether fifteen minutes was sufficient time for a grade six student to produce a creative writing sample representative of his creative writing ability.

In June, 1967, the Sequential Tests of Educational Progress, Writing, Form 4A and the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing were administered to pupils who had been randomly assigned to one of three groups. Each of these groups was assigned either fifteen, thirty or forty-five minutes in which to complete the creative writing test. Intelligence quotients were obtained from the students' cumulative records.

After determining that the three randomly chosen groups were equivalent in age, I.Q., and writing ability, the data collected were analysed using one-way analysis of variance, two-way analysis of covariance, and the Newman-Keuls procedure. The resulting F-ratios were used to test for significant differences among the group means.

The following findings were revealed in the analysis of the data from the 207 urban elementary school children examined:

1. Amount of time spent in creative writing was a significant predictor of creative writing ability even after adjustment for writing ability. That is, the improvements in creative writing scores with increases in time were not attributable to group differences in writing ability.

2. Although the initial analysis indicated that forty-five minutes of writing time allowed for a higher quality of the creative writing product than did fifteen minutes, separate analyses of the data of the males and females showed that it was the males who benefited from increases in time.

3. Females scored significantly higher than males on both creative writing and on writing ability in the analyses of all writing measurements regardless of group membership.

4. Intelligence was a significant predictor of creative writing ability. That is, there was a significant correlation between intelligence and creative writing ability.

It was concluded that teachers and administrators should reconsider giving grade six pupils only fifteen to twenty minutes in which to produce creative writing samples. The sex difference showed that some children do better than others with increases in time.

This study also casts doubt upon those theories which postulate that creativity is something different from intelligence as there was a highly significant correlation between creative writing ability and intelligence. This correlation, however, did decrease with increased amounts of writing time.

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CHAPTER I

THE PROBLEM, ITS NATURE AND SIGNIFICANCE

I. INTRODUCTION

In the development of our educational system, the measurement of a pupil's potential abilities has attracted increasing amounts of concern. Educators are constantly trying to gain insights into the intellectual functionings of pupils in order to ascertain what a child can assimilate and at what level his thinking operates. Until recently, intelligence tests such as those developed by Binet, Thorndike, and Wechsler have mainly been used to assess the intellectual functioning of children; but, in the past decade, tests other than intelligence tests have come into use. These new tests attempt to account for the areas of mental functioning which intelligence tests do not measure. One of these areas is called creative thinking. The importance of the development and measurement of creative thinking has been emphasized by many leading educators who believe that the creative potential, if developed, is the key to the future existence of our society.

Over the years, many definitions of creativity have been advanced but all of them have one common aspect. They all contend that creativity involves a rearrangement of existing

knowledge, ideas or structures so that new knowledge, ideas, or structures result. For example, an original idea is considered to be creative. Creative writing, then, refers to original ideas and expression. Despite considerable research on the subject of creativity in the last ten years, few studies have been concerned with the creativity of elementary school children. Even fewer studies have dealt with creative writing at any level.

Many teachers desire their pupils to write creatively and so provide stimulating experiences or ideas to motivate creative writing. Once a creative writing sample is obtained, it is usually scored according to traditional criteria, mainly, sentence structure, vocabulary, spelling, capitalization, punctuation, and, frequently, neatness and length as well. If creative writing is truly concerned with the quality of the child's ideas and expression, emphasis on evaluation must center upon the child's originality and imagination. Attention should be given to the sensitivity of the writer and manner in which the ideas are presented, not to the traditional criteria such as spelling, neatness, and punctuation. In order to facilitate a positive type of writing evaluation, E. Paul Torrance and Kaoru Yamamoto have developed a test of creative writing ability.

II. THE PROBLEM

Conflicting guidelines are presented in the research

regarding the amount of time a child should be given to produce a creative writing sample. The creative writing subtest of the Minnesota Tests of Creative Thinking and Writing constructed by Torrance and Yamamoto allows the child fifteen minutes to produce a sample of creative writing. A forty minute period was given by May and Tabachnick (1966) in their study of the creative writing of sixth grade children. Wallen and Stevenson (1960) placed no time limit upon their grade five pupils' efforts to produce an adequate creative writing sample, although most of their subjects finished in forty-five minutes. Supporting evidence for an unrestricted amount of time in which to produce a creative writing sample is presented by Wallach and Kogan (1965). They object to the pressure of time in creativity tests which adversely affects the child's production of ideas. Torrance (in Taylor, 1964) described the findings from one pilot study which studied language behavior in children's imaginative stories. He reported that the more creative children wrote longer stories and used a greater variety of words.

Evidence presented in a study of third grade children's written expression by Woodfin (1966) substantiates Torrance's report. Although Woodfin was not evaluating creative writing ability, her findings do have implications for research concerned with the measurement of the creative writing product. Woodfin reported that an increase in writing time not only

produced an increase in the quantity of writing (as Torrance also reported) but also produced an increase in the quality of the child's written expression.

Most theories about creativity imply that creativity occurs over a period of time but very rarely give much attention to the effects of time. There are implications in the creativity theories that an increase in time devoted to creative activity should produce an increment in creative productivity. For example, one theory has defined four phases of the creative process: preparation, incubation, illumination, and verification (Kneller, 1965). In the preparatory phase, the creative writer must sense the problem and explore ideas for solving the problem. Different ways of expressing the ideas are considered. During the phase of incubation, the unconscious mind of the writer tosses the ideas around so that the solution to the problem is illuminated and all the ideas fall into a meaningful pattern. The verification phase involves a judgment, revision, and expression of the solution in a logical framework.

It is recognized that although it is difficult to separate the phases of the creative process, they are identifiable and each phase requires an expenditure of time. That is, as creativity is developing through these stages, a definite period of time must elapse. Without sufficient amounts of time, creativity might never develop. Theorists who have considered the necessity of

identifying these phases of creativity have avoided a consideration of the amounts of time involved other than citing examples of famous persons and the time involved for them. For example, Kneller (1965) stated that Hart Crane worked for months and years on a poem. Furthermore, the possibility of a differential time involvement for children has never been speculated.

If we are to accept the theories which postulate stages of creativity, it would be logical to expect that decreasing the time available to too great an extent may affect the production of a creative writing sample. The writer may not only need time to produce the sample, but time to prepare his ideas, to allow for incubation, illumination and verification of the solution. Given more time, an individual's creative processes may have a better opportunity to bloom.

There are other reasons why an increase in writing time may produce an increase in creative writing quality. One reason involves the pressure of time which affects us all in different ways. For some, the pressure of time results in increased productivity. Ideas are produced quickly. This need to produce immediately could lead to conformity, though, as the ideas might be presented in a superficial, forced manner. The writer may require more time to produce new ideas and consider the total framework of his presentation before he works on certain words or sentences. Since the generation of ideas takes time, an

increase in the amount of writing time would allow for more thoughts, organization and supporting detail. Often we demand that children get to the point of their idea, thereby denying them the opportunity to pursue their thoughts. The first expression of an idea is not necessarily the best, so with time, expression can be developed precisely and explicitly. An increase in writing time may allow him time to become involved with his ideas and may also allow him time to develop a conducive frame of mind for creative writing.

Wallach and Kogan (1965) also present evidence that creative output increases with time. In their discussion about the creative quality of associative elements, they report that the incidence of stereotyped associates is initially high, but that the incidence of unique associates will occur after a period of time. This indicates that the creativity manifested increases over time. As stated above, Torrance (in Taylor, 1964) has reported that the more creative children did write longer stories. He did not, however, indicate any relationship between writing time and the level of creativity manifested. That is, do creative children need more writing time, or do children who write for longer amounts of time express more creative ideas?

Certainly the relationship between time and creativity must be examined if time limits on tests of creativity are to be established. As creative writing tests are being developed for ele-

mentary school children, the authors of such tests must decide upon the amount of time they will allow pupils to produce an adequate sample of creative writing representative of the child's creative writing ability. The Minnesota Tests of Creative Thinking and Writing are receiving an increasing amount of attention as effective measuring devices of elementary pupils' creativity, but these tests place time restrictions upon all aspects of measurement including the production of the creative writing sample. If the measurement of creative writing ability as presented by this test is to be accepted as a valid measure, it is necessary to ascertain the effect of a time restriction upon the creative writing product.

The creative writing subtest of the Minnesota Tests of Creative Thinking and Writing does have the necessary characteristics of an effective evaluative instrument of elementary pupils' creative writing ability. Reports of intra- and inter-score reliabilities of .72 to .99 indicate that it is a reliable measure. Despite its short time limit of fifteen minutes, it does have apparent validity in that it places the emphasis of evaluation upon ideas and expression, not mechanics. This test is a standardized test and presents norms for grade four, five, and six pupils. Torrance claims that the test minimizes the effect of the pupils' experiential background (in Torrance and Gupta, 1964). He reported that very few pupils recalled experiences from their own background. Since this test of creative writing ability has been

given what seems to be an arbitrary time limit of fifteen or twenty minutes for completion, it would be a suitable instrument to be used to determine the effects of varying amounts of time upon the creative writing product.

III. PURPOSE OF THE STUDY

It is the purpose of this study to examine the effects of varying amounts of time upon the creative writing product as measured by the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing. The study also seeks to determine whether fifteen minutes is sufficient time for a grade six student to produce a creative writing sample representative of his creative writing ability.

The measurement of creative writing ability will be studied in relation to the factors of time, writing ability, intelligence, sex, and achievement. Following are questions which this study seeks to answer:

1. Does an increase in writing time produce an increase in creative writing score and, if so, does fifteen minutes, thirty minutes, or forty-five minutes writing time produce the highest creative writing score?
2. Is intelligence a significant predictor of creative writing ability?
3. Is writing ability a significant predictor of creative writing ability?
4. Is achievement level a significant predictor of creative writing ability?
5. Is there a significant difference between the creative writing ability of males and females?

IV. DEFINITION OF TERMS

For the purposes of this study, several terms are operationally defined as follows:

Creative writing ability refers to the ability to react to verbal stimuli in a written form with organization, sensitivity, originality, imagination, psychological insight, and richness in ideas as measured by the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing.

MTCTW refers to the Minnesota Tests of Creative Thinking and Writing.

Intelligence refers to the mental processes which are descriptive of intelligent behavior as measured by the Lorge-Thorndike Intelligence Tests (Canadian Edition). Verbal intelligence refers to the measurement by the verbal section of this test, and nonverbal intelligence refers to the measurement by the nonverbal section.

Writing ability refers to the ability to identify strengths, errors, and weaknesses in a passage of writing and to make revisions with regard to organization, convention, critical thinking, effectiveness, and appropriateness as measured by the Sequential Tests of Educational Progress, Writing, Form 4A.

STEP refers to the Sequential Tests of Educational Progress, Writing, Form A.

Achievement is defined in terms of the continuous progress plan in the Edmonton Public School system which places elementary children into one of four classifications--accelerated, high average, low average, or decelerated.

V. DESIGN OF THE STUDY

The 207 children involved in this study consisted of the total grade six enrollment less absentees of two Edmonton Public elementary schools. In the latter part of June, 1967 each child was administered the Sequential Tests of Educational Progress, Writing, Form 4A. In order to administer the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing, each child was randomly assigned to one of three time-defined groups. An attempt was made to form the groups with children of equivalent achievement level. Group A received the creative writing test in fifteen minutes, Group B in thirty minutes, and Group C in forty-five minutes. Both the STEP and the MTCTW writing tests were administered to groups of pupils with the classroom teachers administering the STEP Writing test and the writer administering the MTCTW creative writing test.

Statistical analyses using a linear regression model and

computer programs supplied by the Division of Educational Research Services, University of Alberta, were used to determine the effect of time upon the creative writing product.

VI. SIGNIFICANCE OF THE STUDY

The increasing emphasis on creative writing at the elementary level creates a need for the development of pertinent guidelines for the teachers of the language arts. Close attention should be given to the amount of time that children are given in which to produce a creative writing sample for evaluation purposes. In particular, it should be determined whether the fifteen minutes allowed by the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing is optimum for the child to produce a creative writing sample representative of his ability.

VII. OUTLINE OF THE STUDY

The present chapter is an introduction to and preview of the study. A review of pertinent literature is presented in Chapter II. Chapter III consists of a detailed description of the design of the study and the statistical procedures used in analysing the data. Chapter IV includes the results of the statistical analyses and Chapter V summarizes the study and presents the conclusions, limitations, and implications for further research.

CHAPTER II

A REVIEW OF THE RESEARCH

In an address to the American Psychological Association, J. P. Guilford (1950) reported that only 186 out of 121,000 titles in the Psychological Abstracts were indexed as bearing definitely on the subject of creativity. Since that time, a wealth of material on creativity has emerged from researchers around the world. Despite this increase, few creativity studies have been concerned with elementary school children. Those studies which were concerned with the measurement of creative writing ability at the elementary level seldom used the same bases or model for their measurement. Each researcher designed his own device for measuring creative writing ability. The increasing attention that creative writing activities are receiving demands the establishment of measurement guidelines for the teacher and the researcher.

Many articles have been written which extol the benefits of teaching creative writing at the elementary level: Brodsky (1963), Carey (1962), Dragoo (1962), Jones (1963), Krich (1963), Martin (1962), Sister Antony Mary (1965), Sister M. Joan (1965), Teidt (1964, 1965), and White (1963). These articles are not based upon research procedures. Instead, they relate to the writer's experience with children's creative writing and encourage

other teachers to motivate students to write creatively. Although Shane and Mulry (1963), Wyatt (1962), and Darnell (1962) decried the lack of creative writing research which are based on experimental procedures, meaningful studies are available as a basis for future research.

May and Tabachnick (1966) used three grade six groups to examine the effects of organized and unorganized stimuli upon the creative writing product. Their first group was presented with organized stimuli (i.e., a representational drawing), their second group with unorganized stimuli (i.e., a design or nonrepresentational drawing), and their third group was given both stimuli and allowed to choose which one they would use as a stimulus for writing a story. Each group was given forty minutes in which they were to write a story that the picture made them think about. The group that had to make a choice was given an extra five minutes to compensate for the time taken to choose between the two pictures. All the stories were typed with spelling and gross grammatical errors corrected before judges rated the compositions. The stories were rated as either creative or noncreative by each of the twelve judges so that each paper received a score out of twelve. In conclusion, after all the results were tabulated, no conclusive inferences were made about the relationships between the organized and the unorganized stimuli. A sex difference was noted though, and important implications:

This study provides evidence of the importance of recognizing differences in motivational patterns that may exist in the classroom, especially differences between the patterns of boys and girls.... A non-objective picture provides more opportunity for choice of ideas for writing than a representational drawing does, and a non-objective picture may intrigue some of the boys who are not interested in the more explicit pictures. (p. 93)

Wallen and Stevenson (1960) administered a series of creative writing exercises to sixty-three fifth graders along with the California Tests of Mental Maturity; the California Achievement Tests for reading, arithmetic, and language; and the Science Research Associates Junior Inventory--a measure of social adjustment. Other ratings of social adjustment were also obtained from the teacher and from the Ohio Social Acceptance Scale. Three of the creative writing products from each child were marked without regard for spelling, neatness, vocabulary, and length. A "creativity" score was defined as a combination of the three creative writing scores. The data collected presented a consistent, coherent picture according to the authors of the study. There was a substantial relationship reported between the "creativity" score and each of the ability measures (the correlations ranged from .57 to .72), and a smaller, but significant, relationship between the "creativity" score and social adjustment indicating a tendency for the more creative to be better adjusted socially. Wallen and Stevenson (1960, p. 275-276) conclude:

As to the relationships between creativity and other dimensions, we may say that they support the notion that

creativity in writing does not exist in a vacuum but is rather highly related to general intellectual and academic skills. It is rather surprising to find the measure of general ability correlating to a lesser degree with creativity score than the measures of specific academic skills, though the difference is not statistically significant. It may be that creativity in writing is more heavily dependent on such specific skills than many have thought. An alternative explanation is that our [Wallen's and Stevenson's] judges were in fact rating "scholastic conformity" rather than creativity though we do not think this to be the case.

Yamamoto (1963) did a similar study in 1960, using its results to cast doubt upon the findings of Wallen and Stevenson (1960). In his study, Yamamoto examined the relationships between intelligence, achievement, creative thinking, and creative writing in a small, highly intelligent population of children in grades three to six at the University of Minnesota Elementary School. The findings reported are suspect in the light of the small number of pupils in the sample ($N = 79$, and the average number of pupils at each grade was only twenty), and the high average I.Q. of the sample (Stanford-Binet $\bar{X} = 127.14$).

Although Yamamoto's findings did reveal a significant correlation between I.Q. and creative writing scores, they also showed that creative thinking scores and creative writing scores did not correlate highly at all. (I.Q. - creative writing: $r = .28$, significant at the .05 level of significance. In Wallen and Stevenson, $r = .57$ between I.Q. and creative writing.) It may be considered surprising that arithmetic achievement correlated higher with creative writing than did either I.Q. or

creative thinking. Yamamoto's sample was restricted to a highly intelligent group of pupils, without consideration of both the average and the low intelligence groups, therefore Yamamoto's criticism of Wallen and Stevenson appears to be invalidated due to this weakness. It is unfortunate that Yamamoto, in his effort to strengthen the study done by Wallen and Stevenson, failed to justify the explanations he presents as to why the findings of the two studies differ. It appears that most of the differences between the two sample groups would explain the discrepancies which arose. Whereas Wallen and Stevenson used sixty-three grade five students with an average I.Q. of 103.58, Yamamoto's sample of seventy-nine pupils is spread over four grades. Although these researchers used different instruments to measure intelligence, a comparison can be made. Such a comparison reveals that Yamamoto's group has a much higher average intelligence than does the group that Wallen and Stevenson used--23.56 points higher.

Nevertheless, the conclusions of both studies are in agreement: Wallen and Stevenson (1960, p. 275) state that "creativity in writing does not appear to exist in a vacuum but is highly related to general intellectual and academic skills." Yamamoto similarly concludes that "quite possibly, one must accumulate considerable knowledge and understanding before he can try a creative jump, and his imaginative endeavors must be backed up by a certain level of intellectual and academic skills."

(Yamamoto, 1963, p. 308)

A study of the "free-writing" or creative writing compositions of 1739 grade four, five and six students in Alberta was undertaken by McKie (1963) in order to determine patterns of language development with respect to sex and environment (rural-urban). Many of the qualities which she considered in the children's writing are those qualities evaluated in creative writing studies mentioned above. The findings in this study indicated a continuous development in writing ability from grade four to six. In grades four and five the performance of the girls was significantly superior to that of the boys, but in grade six, this difference was not significant. As a suggestion for further research, McKie recommends a study which compares the results of a standardized language test to those of a free-writing situation. Since there are few studies which go further than analysing the mechanics of capitalization, punctuation, grammar usage, spelling, and sentence structure, McKie contends it is highly desirable that language development be assessed in terms other than those based on standardized tests.

In order to evaluate the effectiveness of instruction and the level of pupil attainment, teachers need some standard against which they can compare their students' work. In the past, a teacher who engaged in creative writing instruction found himself without these standards of comparison. Guides to help the teacher

evaluate the creative writing product were scarce. Only the general rule to evaluate ideas and not the mere mechanics of expression could be followed. The need to develop an adequate instrument to measure creative writing ability was created out of this difficulty to measure ideas, not mechanics.

A study by Edmund (1956) is one of the first main studies which is concerned with the creative writing of young children. His study was designed to answer the question regarding the relationship which may exist between the students' prior experiences and the quality of their creative writing. Although he realized the problem of measuring creative writing ability--"Defining creative writing is itself a problem. By its very nature, it lends itself to measurement difficulties." (p. 82)--Edmund did not give the measuring device due consideration. No evidence is presented which attests to the reliability of the creative writing evaluation. Later studies by Wallen and Stevenson, and May and Tabachnik (1960 and 1966 respectively) did present interscorer reliabilities of .81-.86 and .80 respectively. These researchers constructed their own measures of creative writing ability.

Since 1964, the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing, as developed by Torrance (1965) and Yamamoto (1964b), has been used in an increasing number of studies. Several reports as to the reliability of this study were available. With the exception of a study by Wodtke (1964),

only inter and intrascorer reliabilities are reported. Wodtke examined a test-retest reliability for the Minnesota tests. Although he reported a test-retest reliability of only .09, he states that this reliability, computed for a small subsample of thirty-one pupils, is probably not representative of the true reliability of the creative writing measure. A high interscorer reliability of .91 - .99 does attest to the specificity of the criteria.

Goldman and Clarke (1967) investigated both the inter and intrascorer reliability of the creative writing part of the Minnesota tests. For the intrascorer reliability, a two week interval separated the first and second markings. With the exception of one low intrascorer reliability of .48, all intra and interscorer reliabilities ranged from .72 - .95. They concluded that their study did indicate high levels of intra and interscorer reliability for judgments of creative writing when clear criteria are laid down.

The developers of the Minnesota Tests of Creative Thinking and Writing, Torrance and Yamamoto, both report interscorer reliabilities of .76 - .88 for these tests. The high intra and interscorer reliabilities generally reported (the Goldman and Clarke study was conducted in England) attest to the clarity of the manual devised by Yamamoto (1964b) as a guide for the evaluation of creative writing products. As all

the reliabilities reported here resulted from creative writing testing done at the elementary level, Yamamoto's manual for scoring creative writing may be considered a valuable guide for elementary teachers and researchers alike. Research is needed to determine the test-retest reliability of the creative writing measurement.

Several studies have compared creative writing scores with those attained on standardized language achievement tests. Significant correlations were found in all cases. In a comparison between the language subscore of the California Achievement Test and a creative writing score, Wallen and Stevenson (1960) reported a .72 correlation significant at the .01 level. Yamamoto (1963) reported a .67 correlation significant at the .001 level between the language subscore of the Iowa Every-Pupil Tests of Basic Skills and the creative writing score on the Minnesota test. In a similar comparison, Torrance reported a .46 correlation significant at the .05 level. In all these studies, the correlations between language ability and creative writing ability are much higher than the correlations between intelligence and creative writing levels.

In her review of the literature, McKie (1963, p. 23) states that "studies which compare the language performance of boys and girls generally indicate that girls have attained the higher scores." A study of the written expression of third grade pupils by Woodfin (1966) found no significant sex differences.

Marksberry (1963) stated that the only difference between the writing of girls and boys in the fifth and sixth grades is that the girls have a tendency to write more in a given length of time. In studies of creative writing ability, both Rees (1965) with grade five students, and May and Tabachnick (1966) with grade six students, found that girls excelled boys with a significance at the .05 level. McKie reported sex differences in creative writing ability in grades four and five which significantly favored the girls at the .01 level. However, she did not find any significant difference between the creative writing ability of girls and boys in the sixth grade. No studies show male superiority in either language performance or creative writing ability in the elementary grades.

The studies discussed consider variable effects of intelligence, language ability as measured by standardized achievement tests, and sex upon creative writing ability. Woodfin (1966), using groups of grade three students matched for age, intelligence, socio-economic status and language ability, found that neither the quantity nor the quality of girls' written expression was significantly greater than that of boys. In agreement with Marksberry (1963), she did state that the girls do write at a faster rate. Attention is drawn to her other conclusions: 1) Increases in writing time produces improvement in both quality and quantity of written expression, 2) Third graders can write for longer than

is expected.

The importance of allowing children sufficient amounts of time in which to produce a written composition is emphasized by Braddock (1963) who comments on those studies that restrict the writing period to twenty or thirty minutes:

Although such a brief time may be sufficient for a third grader writing a short narrative on a familiar topic, it seems ridiculously brief for a high school or college student to write something thoughtful. (p. 9)

But Woodfin has suggested that even third graders are not normally given sufficient time to produce their best work. At the grade five level, Wallen and Stevenson (1960) found that although most students finished their creative writing in forty-five minutes, some needed as long as two hours. In the studies of creative writing ability, only Servey (1959) mentioned that he considered the amount of time which he gave his subjects to write. He found that in twenty minutes all but a few children could complete their writing samples. In the manual for the Minnesota Tests of Creative Thinking and Writing, Yamamoto (1964b) directs the test administrators to allow the children fifteen minutes. Elsewhere Torrance (1965) suggests twenty minutes for the same test; Wodtke (1964) and Goldman and Clarke (1967) both use the twenty minutes for the Minnesota tests. In other tests of creative writing ability, May and Tabachnick (1966) and Edmund (1956) allowed forty to forty-five minutes. In the study of

Darnell (1962), forty-five minutes were allowed for the first creative writing session and thirty minutes in each session thereafter. In the study by Wallen and Stevenson (1960) mentioned above, no time limit was set upon the creative writing session. Such freedom is strongly supported by Wallach and Kogan (1965) who criticize any tests of creativity which impose time restrictions.

With the exception of the study by Woodfin (1966), no research has investigated the influence of varying amounts of time upon children's written expression; despite the growing concern for the development of reliable and accurate measures of children's creative writing ability, no studies have been concerned with the amount of time that children should be allowed to write in order to produce an optimum sample of creative writing. There is some evidence that a fifteen minute time limit as suggested by Yamamoto (1964b) in his manual for the Minnesota Tests of Creative Thinking and Writing is not a sufficient amount of time for a child to produce an adequate writing sample. As is strongly suggested by Braddock (1963, p. 9):

It would be highly desirable to discover, through research, the optimum amounts of time needed by students at various levels of maturity to write thoughtful papers. Until such research has been conducted, investigators should consider permitting primary grade children to take as much as 20 to 30 minutes, and intermediate graders as much as 35 to 50 minutes....

Summary of chapter. This chapter has reviewed several meaningful creative writing studies which have investigated the creative writing ability of elementary pupils. Most of the researchers devised their own creative writing test instruments but gave little explanation of the instrument and how they chose their time limits for writing. Other studies chose to use the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing which is well documented and widely used. The high inter and intrascorer reliabilities reported by the researchers who used this test indicate the explicitness of its criteria. All studies of creative writing ability reported high correlations between intellectual abilities and creative writing ability. Correlations between language ability and creative writing ability were higher than those reported between intelligence and creative writing ability.

Although some studies which compared the creative writing scores of males and females reported significant differences favoring females, there was an indication that no sex difference existed at the grade six level. No studies revealed male superiority in creative writing ability.

With the exception of one study, the importance of time restrictions on the production of a creative writing sample appeared to be overlooked. The one study which did consider time effects was not evaluating creative writing ability. However,

its findings may be similar in the creative writing situation: quantity and quality of writing both increased with greater amounts of writing time. Most studies reviewed restricted the writing period to fifteen or twenty minutes. These time restrictions were strongly criticized and a need for detailed consideration of time effects is stated.

CHAPTER III

THE EXPERIMENTAL DESIGN AND STATISTICAL PROCEDURES

This chapter presents descriptions of the sample, the testing instruments, the testing procedure, and the statistical procedures used to analyse the data.

I. THE SAMPLE

In June, 1967, eight classes of grade six pupils, consisting of all grade six pupils of two large elementary Edmonton Public schools, participated in this study. The total sample consisted of two hundred and seven pupils from two schools each consisting of over five hundred elementary pupils from average socio-economic areas of Edmonton. It would seem reasonable to assume that any conclusions reached regarding these students would apply, in general, to grade six students in Alberta from similar large urban elementary schools. Those pupils absent from any of the testing were not included in the total sample and were excluded from the analyses.

The pupils were to be divided into three groups of comparable intelligence, achievement, and writing ability. Since all the students from the participating schools had been placed into one of four continuous progress categories, it was decided to choose randomly the pupils from each category and place them into

one of three groups. As the continuous progress categories (accelerated, high average, low average, and decelerated) are formed on the basis of student achievement, the three groups formed for this study were assumed to be comparable with respect to intelligence, achievement, and writing ability, as well as on other factors which could influence the final conclusions. To determine the correctness of this assumption, detailed analyses were undertaken.

An attempt was also made to place an equal number of males and females into each group, but due to the unequal numbers of males and females in the continuous placement categories, this attempt was somewhat unsuccessful. The size of each group is presented in Table I.

II. THE TESTING INSTRUMENTS

Three standardized tests were used to measure pupil abilities. The Lorge-Thorndike Intelligence Tests, administered by the classroom teachers as part of the school system's policy, were used to estimate the pupils' abstract intelligence; the Sequential Tests of Educational Progress (STEP) writing test was used to estimate the pupils' writing ability; and the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing (MTCTW) was used to estimate the pupils' creative writing ability.

TABLE I

NUMBER OF STUDENTS COMPRISING EACH GROUP
ACCORDING TO SEX

Group	Sex		Total
	Male	Female	
A	34	33	67
B	41	28	69
C	35	36	71
TOTAL	110	97	207

The Lorge-Thorndike Intelligence Tests (Level 3)

In the Fifth Mental Measurements Yearbook, Freeman (in Buros, 1959, p. 350) has described the Lorge-Thorndike test as being among the best group tests of intelligence available. Milholland (Buros, 1959, p. 352) comments that the uses recommended for these tests are reasonable and defensible. No objection to the use of these intelligence tests are presented.

Lorge and Thorndike (1962, p. 2) have based their tests on the premise that "most abstract ideas with which the school child deals... are expressed in verbal symbols, so much so that verbal symbols are appropriate media for the testing of abstract intelligence." Certain mental processes which are descriptive of intelligent behavior are sampled by the Lorge-Thorndike tests. These processes include interpretation and use of symbols, dealing with relationships among concepts and symbols, flexibility in the organization of concepts and symbols, and utilizing one's experience in new patterns.

High reliability scores for these intelligence tests are presented by Lorge and Thorndike (1962). The manual lists an alternate form reliability of .81 on the non-verbal and .90 on the verbal sections, an odd-even reliability of .94 on both sections, a test-retest reliability of .79 on the non-verbal and .60 on the verbal section, and also a correlation between the verbal and non-verbal section of .66. (In this study, the

correlation between the verbal and non-verbal sections was .77.)

The Sequential Tests of Educational Progress - Writing Form 4A

STEP is the abbreviated name for the Sequential Tests of Educational Progress, a series of tests constructed to indicate student achievement in many different areas. The STEP Writing Test (Level 4, Form 4A) was administered to determine the writing ability of the students in this study within the limits of the test. As Zahner has stated in The Fifth Mental Measurements Yearbook,

Within the limits set any test in composition by the requirement of objective testing, this is a strong test, well conceived and executed. Its use of student writing as a base is realistic. Its coverage of the details of structure, usage, rhetoric, and logic is wide and nicely attuned to the grade levels used. (Buros, 1959, p. 262-263)

This test is more a test of proofreading and editing than of writing because nowhere is the student asked to do any writing, but it is an objective test of the skills of written composition. Although the STEP Writing Test may not achieve all of its comprehensive objectives, it does provide an adequate indication of the students' writing ability; and for the purposes of this study was useful in evaluating the equivalence of the three groups studied. Among other skills tested by the STEP Writing Test, the most important in relationship to this study are its measurement of the ability to organize ideas, to think critically with regards to perception of cause and effect relationships, to

choose appropriate tone and level and to effectively include exactness, simplicity and variety. It is also important to note that the STEP Writing Test was designed as a power test, not as a speed test, so that fast students would not have an advantage.

Reliabilities for the STEP Writing Test reported in the technical report are the results of internal analysis based on a single administration of the test. The reliability reported for Form 4A was .89 with a standard error of measurement of 3.53.

The Minnesota Tests of Creative Thinking and Writing

For the purposes of this study, only the writing subtest of the MTCTW was used. Several researchers have reported high reliability scores for this writing subtest. Yamamoto (1964b) reported an interscorer reliability of .76 to .88, Wodtke (1964) reported an interscorer reliability of .91 to .99, and Torrance (1962) reported an interscorer reliability of .76 to .80. All of these allowed their subjects either fifteen minutes or twenty minutes in which to complete the test. Yamamoto (1964b) reported means for fifty males in grade six and sixty-five females in grade six as 13.54 and 17.37 respectively. The grand mean reported for the one hundred and fifteen students was 15.70 with a standard deviation of 5.11.

In the manual for this creative writing test, Yamamoto

(1964b) attempts to guide the evaluator of creative writing to judge in terms of ideas, concepts, and qualities of originality, instead of literary values, grammatical correctness, and refinement. The aim is to judge writings in terms of their creative achievement. To achieve this end, Yamamoto's evaluation of creative writing is based upon six major categories: organization, sensitivity, originality, imagination, psychological insight, and richness. Each of these categories is subdivided into five criteria and these criteria are specifically used to evaluate the creative writing. Yamamoto (1964b) has stated that the objective of the manual was to minimize subjectivity and maximize objectivity in the evaluation. In view of high reliability coefficients reported (.76 to .99) by researchers in Britain and America, it can be stated that this objective has been attained.

III. THE TESTING PROGRAM

In the fall of 1966, the Lorge-Thorndike Intelligence Tests had been administered to all subjects in this study. The results of these tests, including a verbal score, a non-verbal score, and a composite score, were obtained from each student's cumulative records.

In June 1967, the STEP Writing Tests and the writing subtest of the MTCTW were administered to all the grade six pupils present in the two participating schools. The STEP Writing Tests

were given in the students' home classroom with the classroom teachers administering. The creative writing subtest of the MTCTW was administered in each school's library by the researcher.

All tests given were administered exactly according to the test manuals except in the case of the time allotment recommended in the manual for the MTCTW. In this instance, the time allowed the subjects to complete the creative writing task was varied according to group so that Group A was allowed fifteen minutes (as suggested by the manual) to complete the test, Group B was allowed thirty minutes, and Group C was allowed forty-five minutes.

The testing schedule for the STEP Writing Test and for the creative writing subtest of the MTCTW are found in the Appendix. The participating schools and cooperating teachers are also listed.

IV. STATISTICAL PROCEDURES

Each student was assigned an identification number and the following data for each student was punched onto IBM cards: the total Lorge-Thorndike Intelligence Test score, the STEP Writing score, the MTCTW creative writing score, the treatment group assigned, the Lorge-Thorndike verbal score and non-verbal score, the student's chronological age, the STEP Writing converted score, the sub-scores of the MTCTW creative writing test, the school attended, the student's classroom teacher, the student's sex, the continuous placement category, and the creative writing topic the

pupil chose to write upon. (A complete listing of these data is found in the Appendix.) These data were then analysed using programs supplied by the Division of Educational Research Services, Faculty of Education, University of Alberta and the university's IBM 360/67 computer processed the programs employed.

The computer programs supplied for the analyses of the data in this study were the REG-200 program, the AC-2000 program, and the AV-1002 program. The REG-200 program provides a linear regression approach to analysis of variance. It produces means, standard deviations, and a correlation matrix for all the variables. The AC-2000 program provides for two-way analysis of covariance (Winer, 1962, p. 60). The output for this program consists of covariate and criterion means, within cell regression coefficients, analysis of variance on the criterion and on the covariate, analysis of covariance, and an F-ratio by which the assumption of homogeneity of regression means can be tested. The AV-1002 program provides the Newman-Keuls comparison between ordered means and tests for significant differences on group means for all the variables (Winer, 1962, p. 102).

This chapter has been a description of the sample, the testing instruments, the testing program, and the statistical procedures followed in analysing the data. Results of the data analyses are found in the following chapter.

CHAPTER IV

THE FINDINGS

This chapter presents the results of the major statistical analyses completed. Each hypothesis tested was examined, and the results of each computer program will be interpreted.

I. EQUIVALENCE OF THE TREATMENT GROUPS

The initial analysis considered the supposed equality of the three creative writing groups tested. These groups have been defined as being chosen randomly from students placed in each of the four continuous progress categories. Since the continuous placement categories in the Edmonton Public school system are decided on the basis of student intelligence and achievement, the three groups chosen for this study were assumed to be comprised of students with comparable ability. If these three creative writing groups were comparable, no significant differences among means should arise on comparisons of chronological age, Lorge-Thorndike Intelligence Test scores (total, verbal, and non-verbal), and STEP Writing scores.

One-way analyses of variance were carried out to determine if, in fact, there were any significant differences among group means on the above comparisons. The results of these analyses are presented in Table II.

TABLE II

MEAN SCORES, STANDARD DEVIATIONS, AND F-RATIOS FROM
ANALYSIS OF VARIANCE ON TEST SCORES AND AGE
FOR THE THREE TREATMENT GROUPS

	Group A	Group B	Group C	F
Writing time (minutes)	15	30	45	
Number of students	67	69	71	
Mean age (in months)	144.39	143.97	144.14	.06
Mean I.Q.	110.37	112.71	112.44	1.00
Mean verbal intelligence	108.81	112.26	111.00	.25
Mean non-verbal intelligence	108.21	111.78	109.93	.71
Mean writing (STEP converted)	266.25	269.84	269.32	1.69

$F_{.05} \geq 3.04$

As shown in Table II, the critical F-ratio for a .05-level test and the associated degrees of freedom in this case is 3.04. A significant difference between the mean scores exists if an F-ratio exceeds 3.04. Using the .05 test ensures that a mean score difference would not be considered significant unless it could occur as a result of sampling error in less than five out of one hundred such sample mean score comparisons. Similarly, use of the .01 test ensures that a mean score difference would not be considered significant unless it could occur as a result of sampling error in less than one out of one hundred such sample mean score comparisons.

Inspection of Table II reveals as a result of .05-level tests, no significant differences between group means with respect to age, intelligence, verbal intelligence, non-verbal intelligence, and writing ability. On the basis of this analysis, the three groups were assumed to be of comparable levels of age, intelligence, and writing ability. It was further assumed that, since the groups were originally matched on the basis of continuous progress placement, they were at an equivalent achievement level.

Grand means and standard deviations of all the tests administered are presented in Table III. The correlations between these tests are shown in Table IV. Levels of significance given were calculated using the two-tailed t-test. All correlations

TABLE III
GRAND MEANS AND STANDARD DEVIATIONS
OF TESTS USED

Test	\overline{X}	SD
MTCTW Creative Writing Subtest (CW)	16.55	3.67
STEP Writing (Raw Score)	40.76	8.68
STEP Writing (Converted Score)	268.50	12.61
Lorge-Thorndike Intelligence Tests (IQ)	111.86	10.48
Lorge-Thorndike (Verbal IQ)	110.04	18.44
Lorge-Thorndike (Non-verbal IQ)	109.99	17.46

TABLE IV
CORRELATIONS BETWEEN TESTS USED

	CW	Verbal IQ	Non-Verbal IQ	Step
IQ	.33	.61**	.55**	.58**
CW		.19**	.08	.34**
VERBAL IQ			.77**	.31**
NON-VERBAL IQ				.25**

** .01 level of significance, $r \geq .18$.

in Table IV are significant at the .01 level of significance except for the correlation between the MTCTW creative writing scores and the Lorge-Thorndike Intelligence Test non-verbal scores which is nonsignificant.

The remainder of the chapter presents the null hypotheses tested followed by the results of the appropriate statistical tests used, the F-ratio value and probability level.

II. ANALYSES OF VARIANCE

Null Hypothesis 1

On the MTCTW creative writing subtest, there are no significant differences among group mean scores obtained by students writing under differing time limits.

Table V presents the group means and the resulting F-ratio from a comparison of these group means using a one-way analysis of variance. Since the observed F-ratio (4.43) for comparisons among group mean creative writing scores exceeded the critical value (3.04), Null Hypothesis 1 was rejected. Since each group differed only in the amount of creative writing time allowed, it was assumed that significant differences among mean scores was attributable to the time factor. Table V shows that Group C, the group which was given forty-five minutes writing time, had the highest group mean score.

To determine whether the influence of the Lorge-Thorndike Intelligence Test scores or the STEP Writing scores significantly

TABLE V

GROUP MEAN SCORES AND F-RATIO FROM ANALYSIS OF
VARIANCE ON CREATIVE WRITING (CW)

	Group A	Group B	Group C	Total Sample	F Ratio
TIME (in minutes)	15	30	45		
N	67	69	71	207	
\overline{X}_{CW}	15.6	16.7	17.4	16.6	4.43*
SD_{CW}	3.8	3.7	3.2	3.7	

* $F_{.05}(2,204) \geq 3.04.$

affect the prediction of creative writing scores from group membership, the effects of these variables were controlled. As shown in Table VI, all appropriate F-ratios exceeded the critical value (3.04) necessary for the .05 level of significance. It was therefore assumed that the amount of writing time allowed was an important factor in creative writing performance.

Null Hypothesis 2

- a) On the Lorge-Thorndike Intelligence Test, there are no significant differences among group mean scores.
- b) On the STEP Writing Test, there are no significant differences among group mean scores.

Table II has presented the group mean scores and the resulting F-ratios from a comparison of the group scores using a one-way analysis of variance. Since neither of the observed F-ratios (1.00, 1.69) for comparisons among group mean intelligence test scores or among group mean STEP Writing scores exceeded the critical value (3.04), Null Hypothesis 2 (a and b) was accepted. Each group may therefore be assumed to be composed of students of equivalent intelligence and equivalent writing abilities as here defined.

Null Hypothesis 3

There are no significant differences among the treatment groups with regards to the continuous progress category to which each pupil belongs.

F-ratios were calculated to test for significant differences

TABLE VI
PREDICTORS OF CREATIVE WRITING SUCCESS

Predictor of Creative Writing Score	Controls	Degrees of Freedom	F Ratio
Group Membership	-	2,204	4.43*
Group Membership	IQ	2,203	3.68*
Group Membership	STEP	2,203	3.39*
Group Membership	STEP, IQ	2,202	3.30*
IQ	-	1,205	25.54**
STEP Writing	-	1,205	26.74**

* $F_{.05}(2,204) \geq 3.04.$

** $F_{.01}(1,205) \geq 6.76.$

among the three time-defined creative writing groups with regards to continuous progress placement (Table VII). The F-ratios calculated by using creative writing group membership as a predictor of each continuous progress category allowed acceptance of Null Hypothesis 3. It was therefore supposed that the groups were composed of pupils of comparable achievement level. Since the pupils were randomly assigned from each of the continuous placement categories to each of the time-defined groups, this result was expected. Significant differences would indicate a poor random construction of the three treatment groups.

Null Hypothesis 4

- a) Intelligence is not a significant predictor of creative writing ability.
- b) Writing ability is not a significant predictor of creative writing ability.

F-ratios were calculated to test Null Hypothesis 4. Since both of the F-ratios observed (25.54, 26.74) exceeded the critical level (6.76) necessary for the .01 level of significance, Null Hypothesis (a and b) was rejected. This finding was assumed to indicate that both intelligence and writing ability were highly significant predictors of creative writing ability in the present study (Table VI).

Null Hypothesis 5

On the MTCTW creative writing subtest, there are no significant differences among the mean scores for males and females.

TABLE VII

GROUP MEMBERSHIP AS A PREDICTOR OF CONTINUOUS
PROGRESS PLACEMENT (CPP)

Predictor	Predicted CPP Level	F-Ratio
Group Membership	Accelerated	.07
Group Membership	High Average	.02
Group Membership	Low Average	.02
Group Membership	Deccelerated	.10

$F_{.05}(2,204) \geq 3.04$

The F-ratio calculated to test this hypothesis (14.66) exceeded the critical level (6.76) necessary for the .01 level of significance so this hypothesis was rejected. Comparisons are shown in Table VIII.

The large differences between the writing and creative writing ability of males and females indicated that analyses should be carried out on each sex as a separate group. The first four null hypotheses were considered for males and females separately. Table VIII presents the means and standard deviations for the test scores of both males and females. Correlations between the test scores are presented in Table IX.

All correlations for the males in Table IX with the exception of one at the .05 level are significant at the .01 level. Two-tailed t-tests were used to determine the significance level. For the females, none of the correlations between the creative writing scores and other test scores are significant. The remaining correlations are significant at the .01 level except for the correlation between non-verbal I.Q. and STEP Writing which is significant at the .05 level.

III. SEX DIFFERENCES IN PERFORMANCE ON THE MINNESOTA TESTS OF CREATIVE THINKING AND WRITING

Table X presents the different group mean scores for males and females under differing time limits. The observed F-ratio

TABLE VIII

MEANS AND STANDARD DEVIATIONS OF THE TEST SCORES ACCORDING TO SEX

	FEMALES (N=97)		MALES (N=110)		F Ratio
	\bar{X}	SD	\bar{X}	SD	
MTCTW (Creative Writing)	17.56	3.58	15.66	3.49	14.66**
STEP Writing (Raw Score)	43.14	8.14	38.66	8.60	14.56**
Lorge-Thorndike Intelligence (Total Score)	111.48	10.15	112.19	10.75	.23
Lorge-Thorndike Intelligence (Verbal Score)	109.26	20.25	110.74	16.65	.33
Lorge-Thorndike Intelligence (Non-verbal Score)	108.85	19.27	111.00	15.61	.78

** $F_{.01}(1,205) \geq 6.76$

\bar{X} = Mean Score
SD = Standard Deviation
N = Number

TABLE IX

CORRELATIONS BETWEEN TESTS USED FOR MALES AND FEMALES

Test	FEMALES (N=97)				MALES (N=110)			
	Creative Writing	Verbal IQ	Non-Verbal IQ	STEP Writing	Creative Writing	Verbal IQ	Non-Verbal IQ	STEP
Total IQ	.29**	.58**	.52**	.60**	.41**	.64**	.58**	.63**
Creative Writing		.12	.02	.13		.30**	.20*	.44**
Verbal IQ			.88**	.31**			.74**	.38**
Non-Verbal IQ				.24*				.33**

* .01 level of significance for females ($r \geq .26$),

** .01 level of significance for males ($r \geq .25$)

TABLE X

GROUP MEAN SCORES AND F-RATIOS FROM ANALYSIS OF VARIANCE ON
CREATIVE WRITING FOR MALES AND FEMALES

	Group A	Group B	Group C	Total	F-Ratio
Males:					
Time in Minutes	15	30	45		
Number	34	41	35	110	
Creative Writing (Mean Score)	14.29	15.41	17.29	15.66	7.19**
Standard Deviation	3.52	3.41	2.82	3.49	
Females:					
Time in Minutes	15	30	45		
Number	33	28	36	97	
Creative Writing (Mean Score)	16.85	18.54	17.44	17.56	1.71
Standard Deviation	3.60	3.39	3.55	3.58	

** $F_{.01}(2,107) \geq 4.81$

for the females in the test for significant differences among the creative writing treatment groups is 1.71. This ratio does not exceed the critical ratio (3.09) for significance at the .05 level, as far as the females are concerned; but the F-ratio reported for the males in the test for significant differences among the creative writing treatment groups is 7.19. This ratio does exceed the critical ratio (4.81) for significance at the .01 level.

For the males, then, there were significant differences among the group mean scores for the creative writing test, but no significant differences existed for the females. Even when controls for intelligence and for writing ability were implemented, the group mean scores for the creative writing test showed no significant differences for the females but did differ significantly for the males. The male creative writing scores increased significantly with an increase in time but the female creative writing scores did not.

Table XI presents the group mean scores for males and for females according to the creative writing group to which they were assigned. Both F-ratios for the females which compared these groups using a one-way analysis of variance were less than the critical value (3.09) necessary for the .05 level of significance. The observed F-ratio for comparisons among group mean intelligence test scores for the females was .30, and for comparisons on the STEP Writing test was .88. For the males, the

TABLE XI

MEAN SCORES, STANDARD DEVIATIONS AND F-RATIOS FROM ANALYSES OF VARIANCE
ON LORGE-THORNDIKE INTELLIGENCE AND ON STEP WRITING TESTS FOR THE
THREE TREATMENT GROUPS ACCORDING TO SEX

	Group A	Group B	Group C	Total	F-Ratio
Males:					
Mean IQ Score	108.79	113.05	114.49	112.19	2.68
Standard Deviation (IQ)	11.83	9.12	10.60	10.75	
Mean STEP Writing Score	260.76	266.83	268.09	265.35	3.99*
Standard Deviation (STEP)	14.56	10.74	9.06	12.01	
Females:					
Mean IQ Score	112.00	112.21	110.44	111.48	.30
Standard Deviation (IQ)	10.61	5.99	1.072	10.15	
Mean STEP Writing Score	271.91	274.25	270.53	272.07	.87
Standard Deviation (STEP)	9.33	9.77	15.76	12.31	

* $F_{.05}(2,107) \geq 3.09$

observed F-ratio for comparison among group mean intelligence scores was 2.68 which does not exceed the critical ratio needed for the .05 level of significance. But for the males, the observed F-ratio for comparisons among group mean STEP Writing Test scores does exceed the critical level (3.09) necessary for significance at the .05 level.

Among the three treatment groups, no significant differences with respect to intelligence or writing ability arose for the females; but for the males, although there is no significant difference among the three treatment groups with regard to intelligence, there was a significant difference at the .05 level with respect to writing ability.

F-ratios were calculated to test for significant differences among the groups for each of the four continuous placement categories. None of the F-ratios calculated for the accelerated category, the high average category, the low average category, and the decelerated category reached the critical level (3.09) necessary for the .05 level of significance. (Table XII).

No significant differences in achievement appeared amongst the treatment groups for either the males or the females. Since this was the basis of the selection of the groups, it was assumed that the placement was random.

F-ratios were calculated using both intelligence and writing ability as predictors of creative writing ability for the males and

TABLE XII

GROUP MEMBERSHIP AS A PREDICTOR OF CONTINUOUS PROGRESS
PLACEMENT (CPP) ACCORDING TO SEX

Predictor	Predicted CPP Level	Degrees of Freedom	F-Ratio
Males:			
Group Membership	Accelerated	2,107	.69
Group Membership	High Average	2,107	.02
Group Membership	Low Average	2,107	.24
Group Membership	Deccelerated	2,107	1.26
Females:			
Group Membership	Accelerated	2,94	1.23
Group Membership	High Average	2,94	.25
Group Membership	Low Average	2,94	.34
Group Membership	Deccelerated	2,94	1.68

$F_{.05}(2,107) \geq 3.09$

$F_{.05}(2,94) \geq 3.09$

and the females. In all cases the F-ratios calculated exceeded the critical levels necessary for the .01 levels of significance. (See Table XIII.) This indicated that intelligence and writing ability were significant predictors of creative writing ability for both males and females.

IV. TWO-WAY ANALYSIS OF COVARIANCE

The sex difference revealed in the foregoing analyses warranted further examination. Since this sex difference in creative writing ability may have been due to the female superiority in writing ability (as revealed by the STEP Writing scores for each group), the groups were subjected to a two-way analysis of covariance using the STEP Writing scores as the covariate (as per Winer, 1962, p. 60). The purpose of this analysis was to adjust for the differences in writing ability between the males and females before the creative writing scores of the treatment groups were compared.

This analysis, as shown in Table XIV, showed the same statistically significant sex difference which favored the females for both creative writing ability and for (STEP) writing ability that exceeded the .01 level. Most important, though, was that there was a significant difference among the treatment groups' mean creative writing scores after adjustment for writing ability differences. The F ratio for this comparison (7.68) exceeded the

TABLE XIII
PREDICTORS OF CREATIVE WRITING SUCCESS
FOR MALES AND FEMALES

Predictor	Degrees of Freedom	F-Ratio
Males:		
IQ	1,108	21.95**
STEP Writing	1,108	30.59**
Females:		
IQ	1,95	8.58**
STEP Writing	1,95	8.78**

** $F_{.01}(1,108) \geq 6.90$

** $F_{.01}(1,95) \geq 6.92$

TABLE XIV

SUMMARY OF ANALYSIS OF COVARIANCE: MTCTW CREATIVE WRITING SCORES ADJUSTED
FOR THE EFFECTS OF STEP WRITING TEST SCORES

Source	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio
Group	83.48	2	41.74	3.75*
Sex	85.34	1	85.34	7.68*
Interaction	48.02	2	24.01	2.16
Within	1790.90	161	11.12	

* $F_{.05}(2,161) \geq 3.06$

* $F_{.05}(1,161) \geq 3.90$

.05 level of significance.

Time proved to be a significant predictor of creative writing ability even after adjustment for group differences in (STEP) writing ability.

V. NEWMAN-KEULS COMPARISON BETWEEN ORDERED MEANS

In order to make comparisons between each of the three treatment groups, the Newman-Keuls procedure as described in Winer (1962, p. 102) was used. Comparisons between each of the three treatment groups and between males and females were made for each of the variables examined in this study.

No significant differences were found when Group A means were compared to Group B means and when Group B means were compared to Group C means; but a significant difference at the .01 level did arise between Group A means and Group C means for creative writing. Table XV shows this finding.

Forty-five minutes of creative writing allowed a student to produce a significantly better product than did fifteen minutes writing time.

Male and female group mean scores when compared revealed no significant differences for any of the other variables except for a significant difference between the males and females at the .01 level on STEP Writing Test scores and on creative writing

TABLE XV
COMPARISON BETWEEN EACH OF THE GROUP MEANS FOR CREATIVE
WRITING USING THE NEWMAN-KEULS COMPARISON
BETWEEN ORDERED MEANS

Group	Creative Writing Means	C	B	A
		17.4	16.7	15.6
A	15.55	1.814*	1.129	0.0
B	16.68	.685	0.0	
C	17.36	0.0		
$q_{.95}(4,204)$	3.31	2.77		
$q_{.99}(r,204)$	4.12	3.64		
r =	3	2		
$\sqrt{MS/N}$				
* $q_{.95}(r,204)$	1.44	1.20		
$q_{.99}(r,204)$	1.79	1.58		

test scores.

This chapter has presented the findings of the statistical analyses. Each question posed in Chapter I was presented in the null hypothesis form which was tested for acceptance or rejection. The males and the females, each as a separate group, were specifically examined after a significant sex difference was noted. A summary of the findings of these analyses is found in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS, LIMITATIONS, AND IMPLICATIONS FOR FURTHER RESEARCH

I. PURPOSE OF THE STUDY

It was the purpose of this study to examine the effects of varying amounts of time upon the creative writing products of elementary children as measured by the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing (MTCTW). It also sought to determine whether the fifteen minutes allowed for by the creative writing subtest of the MTCTW was a sufficient amount of time in which to produce a creative writing product. Certain data were obtained and analysed to answer the following questions:

1. Does an increase in writing time produce an increase in creative writing score, and if so, which amount of time (fifteen minutes, thirty minutes, or forty-five minutes) is most conducive for creative writing?
2. Is intelligence a significant predictor of creative writing ability?
3. Is writing ability a significant predictor of creative writing ability?
4. Is achievement a significant predictor of creative writing ability?
5. Is there a significant difference between the creative writing ability of males and females?

II. DESIGN OF THE EXPERIMENT

Two hundred and seven grade six pupils from two large

Edmonton Public elementary schools participated in this study. These students were randomly placed into one of three groups and each of these three groups was assigned either fifteen, thirty, or forty-five minutes in which to complete the creative writing subtest of the Minnesota Tests of Creative Thinking and Writing (MTCTW). Late in June, 1967, all of the students wrote the STEP Writing Test, Form 4A and the MTCTW in the assigned time. Lorge-Thorndike Intelligence Test scores were obtained from each student's cumulative records. A complete check was made of the randomness of the three groups chosen.

Appropriate statistical analyses were undertaken to examine the questions which the study sought to answer. The data was analysed by using one-way analysis of variance, two-way analysis of covariance, all with the associated F-ratios, and by using the Newman-Keuls procedure to test for significant differences between group means.

III. SUMMARY OF THE FINDINGS

The following findings resulted from the analysis of the data gathered from a sample of 207 urban elementary school children:

1. Amount of time spent in creative writing was a significant predictor of creative writing ability even after adjustment for writing ability. That is, the improvements in creative writing scores with increases in time were not attributable to group dif-

ferences in writing ability.

2. Although the initial analysis indicated that forty-five minutes of writing time allowed for a higher quality of the creative writing product than did fifteen minutes, separate analyses of the data of the males and females showed that it was the males who benefited from increases in time.

3. Females scored significantly higher than males on both creative writing and on writing ability in the analyses of all writing measurements regardless of group membership.

4. Intelligence was a significant predictor of creative writing ability. That is, there was a significant correlation between intelligence and creative writing ability.

IV. LIMITATIONS

The interpretations made for this study were subject to the following limitations:

1. This study did not attempt to determine the possible effect of socio-economic differences among the subjects.

2. The sample studied was restricted to grade six students in an urban public school system.

3. No attempts were made to account for experiential differences among the children although the testing instrument for creative writing ability was designed to minimize such an effect.

4. This study does not determine if each pupils' rank

order (in comparison with the other subjects creative writing scores) remains constant with changes in time.

V. CONCLUSIONS

Statistical significance in this study is reported as being at the .05 level. That is, the difference among mean scores was considered to be statistically significant only if the probability of observing such a difference as a result of sampling error was .05 or less.

To determine if the three groups formed for this study were equivalent in verbal intelligence, non-verbal intelligence, total intelligence, writing ability and age, the appropriate test scores were compared to see if any statistically significant differences existed. None were found, so the three groups were considered equivalent with respect to intelligence, writing ability, age, and due to the groups' formation on the basis of school achievement level, achievement.

1. Males improve their creative writing scores with increases in time. They should be allowed at least forty-five minutes to produce a creative writing sample. Females appear to be able to produce a satisfactory product within fifteen minutes.

2. Females scored significantly higher than the males on both creative writing and on writing ability so it seems that the assumption that no significant sex differences exist in language

ability at the grade six level should be reconsidered.

3. The significant correlation between intelligence and creative writing ability reported indicates that creativity in writing is related to intelligence. The same relationship holds between writing ability and creative writing. This coincides with the findings of other researchers such as Wallen and Stevenson, (1960) and Yamamoto (1963) who also reported significant and positive correlations between both intelligence and language achievement and creative writing ability.

VI. DISCUSSION

This study investigated the effects of time on the creative writing product. There was an attempt to control for other factors which may have influenced the creative writing production. Varied statistical analyses did indicate, at the .05 level of significance, that a fifteen minute period is not a sufficient length of time for grade six pupils to produce their best creative writing sample.

As was theorized in Chapter I, allowing the child more time to write is conducive to the creative writing situation because the child has more time to allow each of the four phases of the creative process--preparation, incubation, illumination, and verification--to develop. Each phase requires an expenditure of time. Forcing the child to accept our preconceived conditions can only

restrict his creative impulses. For example, his ideas may or may not have sufficient time in which to incubate in fifteen minutes. This study has indicated that we must allow elementary children much more time than previously given for their creative potential to develop.

Of course, the evaluation of creative writing ability could be considered a relative condition. That is, one may only desire to discover who is highly creative and who is not. Perhaps every pupil could score higher with more time without changing his rank order when compared to his classmates. But this study has indicated that time affects the pupils differentially in the production of a creative writing sample. For example, males were found to improve the quality of their creative writing with increments in time more than did the females. Does this finding indicate that the present standards (i.e., fifteen minutes writing time) are more conducive to a superior female production? The idea that the elementary school environment is more conducive to female achievement than to male achievement is not a new thesis.

It is theorized that creativity does require sufficient amounts of time for development. Although this study has shown that forty-five minutes writing time is more efficacious than fifteen minutes writing time, it has not shown if hours or even days longer would produce higher creative writing scores. This study has also left other questions unanswered. For example, it

is unclear as to whether the time requirements of children differ from those of adults. That is, do the child's creative processes take lesser amounts of time to develop than similar adult processes?

One of the major factors contributing to the decision to use grade six pupils in this study was the indication from the research of McKie (36), and from previous research by the writer, that by grade six no sex difference in creative writing ability existed. The previous study done by the writer in December 1966 revealed no significant differences between the creative writing scores of males and females. An extremely low F-ratio (.008) when comparing mean creative writing scores of males and females was reported at that time. Although the earlier study was done at the grade five level, it did use the Minnesota Tests of Creative Thinking and Writing with a testing time of fifteen minutes. The report of McKie (1963), using a different measure of creative writing ability, reported no significant sex differences in creative writing ability at the grade six level.

This study casts doubt upon those writers who maintain that intelligence is not a good predictor of creativity. If we are to accept the creative writing measure herein as an indication of creativity, it can be stated that this study did find intelligence to be a highly significant predictor of creativity. The correlation between intelligence and creativity, however, did

decrease with increased amounts of creative writing time.

As a result of this investigation, the writer feels that teachers and administrators should reconsider giving merely fifteen or twenty minutes writing time to grade six pupils. It is hoped that children will be allowed more time in which to express their creative potential.

VII. IMPLICATIONS FOR FURTHER RESEARCH

The major implication for further research in this study comes from the finding that the male creative writing score improves more than the female score with increases in time. It would be desirable to consider this finding in the light of the studies which examine the underachievement of the elementary male student in the language arts areas of school. Could this possibly be one of the factors (i.e., restriction of time) which affects male performance?

Another area of future research could also deal with the effects of time limits upon the creative writing product. It is possible that time limits themselves are the restricting elements, not whether the child produces within a certain length of time. The writer did observe that the children who were given fifteen minutes in which to produce a creative writing sample proceeded to work immediately upon receipt of the instruction whereas the children with longer amounts of time appeared to be more

methodical and deliberate. While some of the students in the thirty and forty-five minute groups left before the time was up, none of the children in the fifteen minute group left early. This indicates that all of the children in the fifteen minute group must have felt some time pressures.

A situation could easily be contrived which varied the period allowed for the children to think about their stories before they wrote them. For example, the writing instructions could be given before recess, before the lunch break, before going home for the day, and before going home for the weekend. This would allow varying amounts of time for the incubation of ideas before the actual writing.

Concluding Statement. This study, by comparing the creative writing product of grade six pupils under differing time limits, has suggested that male elementary pupils should be allowed more time in which to produce a creative writing sample. It is hoped that the differential time effect upon males and females can be explored further with different samples. By allowing pupils to write for longer periods of time, teachers may obtain better creative writing samples from their male students. Future studies can determine whether certain conditions exist under which the creative writing of females may

improve with increases of writing time, too.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Braddock, Richard, Richard Lloyd-Jones and Lowell Schoer. Research in Written Composition. Champaign, Illinois: National Council of Teachers of English, 1963.
- Broadsky, Mimi. "Creative Writing in Elementary School." Elementary English, 40:189-190, February, 1963.
- Buros, Oscar Krisen (Ed.). The Fifth Mental Measurements Yearbook. Highland Park, New Jersey: The Gryphon Press, 1959.
- Carey, Mary. "Write and Speak Creatively." The Instructor, 72:51 and 96, November, 1962.
- Darnell, Donald. Effects of Three Different Methods of Evaluating Writings Upon Creativity in Writing. Ed. D. Thesis, George Peabody College for Teachers, 1962.
- Dragoo, Anne B. "You Can Help Young Children Write Creatively." The Instructor, 72:120-121, September, 1962.
- Edmund, Neal R. A Study of the Relationship Between Prior Experiences and the Quality of Creative Writing by Seventh Grade Children. Ed. D. Thesis, Syracuse University, 1956.
- Goldman, R. J., and D. F. Clarke. "The Minnesota Tests of Creative Thinking--A Note on Scorer Reliability in Follow-up Studies With English School Children." British Journal of Educational Psychology, 115-117, 1967.
- Guilford, J. P. "Presidential Inqugural Address to the American Psychological Association." American Psychologist, 9:444-450, 1950.
- Jones, Mirium I. "Use Your Imagination." Elementary English, 40:271-272, March, 1963.
- Kneller, George F. The Art and Science of Creativity. New York: Holt, Rinehart, and Winston, Inc., 1965.
- Krich, Percy. "'Room 23 Weekly' - A Creative Writing Experience." Elementary School Journal, 63:336-341, 1963.

- Lorge, Irving and R. L. Thorndike. The Lorge-Thorndike Intelligence Tests Technical Manual. Boston: Houghton Mifflin Company, 1962.
- May, Frank B. and B. Robert Tabachnick. "Three Stimuli for Creative Writing." Elementary School Journal, 67:88-94, 1966.
- Marksberry, Mary Lee. Foundation of Creativity. New York: Harper and Row Publishers, 1963.
- Martin, Marvin. "All Writing Should Be Creative." Elementary School Journal, 63:336-341, 1962.
- McKie, Florence I. An Analysis of the Characteristics of Free-Writing by Grade Four, Five, and Six Students. Unpublished M. Ed. Thesis, University of Alberta, 1963.
- Rees, Ruth Lucille. A Comparison of Three Teaching Procedures To Develop Creativity in Written Expression. Ed. D. Thesis, University of Oregon, 1965.
- Shane, Harold G., and June Grant Mulry. Improving Language Arts Instruction Through Research. Washington, D. C.: Association for Supervision and Curriculum Development, 1963
- Sister Antony Mary. "Science Spurs Creativity." Catholic School Journal, 65:58-59, September, 1965.
- Sister M. Joan. "Creative Writing in Grade Two." Catholic School Journal, 65:57 (September), 53 (October), 51 (November), 1965.
- Taylor, Calvin W. (Ed.). Creativity: Progress and Potential. New York: McGraw-Hill Book Company, 1964.
- Tiedt, Sidney, and Iris Teidt. "Guiding Creative Writing." Clearinghouse, 38:401-403, 1964.
- _____. "Can Primary Children Write Creatively?" The Instructor, 75:36, 112, 117, November, 1965.
- Torrance, E. Paul. Guiding Creative Talent. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962.
- Torrance, E. Paul. Rewarding Creative Behavior. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965.

- Torrance, E. P. and Ram Gupta. Programmed Experiences in Creative Thinking. Bureau of Educational Research, College of Education, University of Minnesota, 1964.
- Wallach, Michael A. and Nathan Kogan. Modes of Thinking in Young Children. New York: Holt, Rinehart and Winston, 1965.
- Wallen, N. E. and Gilbert N. Stevenson. "Stability and Correlates of Judged Creativity in Fifth Grade Writings." Journal of Educational Psychology, 51:273-276, 1960.
- Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill Book Company, 1962.
- White, Evelyn M. "Creative Writing for Six-Year-Olds." Elementary English, 40:25-27, 1963.
- Wodtke, Kenneth H. "Some Data of the Reliability and Validity of Creativity Tests at the Elementary School Level." Educational and Psychological Measurement, 24:399-408, 1964.
- Woodfin, Mary Jo. The Written Expression of Third Grade Children Under Differing Time Limits. Ed. D. Thesis, University of Southern California, 1966.
- Wyatt, N. M. "Research in Creative Writing." Educational Leadership, 19:307-310, 1962.
- Yamamoto, Kaoru. "Creative Writing and School Achievement." School and Society, 91:307-308, 1963.
- _____. "Creative Thinking: Some Thoughts on Research." Exceptional Children, 30:403-410, 1964. (a)
- _____. Experimental Scoring Manuals for Minnesota Tests of Creative Thinking and Writing. Kent, Ohio: Bureau of Educational Research, Kent State University, 1964. (b)

APPENDIX

SAMPLES OF THE MINNESOTA TESTS OF CREATIVE THINKING
AND WRITING, CREATIVE WRITING SUBTEST
AND
SAMPLE SCORING WORKSHEET

MTCT&W

CW15

For research purposes only.

In the next fifteen minutes, you are to write the most interesting and exciting story you can think of about one of the topics listed below. Try to write legibly but do not worry too much about your writing, spelling and the like. Instead, try to put into your story as many good ideas as you can think of. Choose from any of the following topics:

1. The teacher who doesn't talk.
2. The hen that crows.
3. The dog that won't fight.
4. The flying monkey.
5. The boy who wants to be a nurse.
6. The girl who wants to be an engineer.
7. The cat that likes to swim.
8. The woman who swears like a sailor.
9. The man who wears lipstick.
10. The cow that brays like a donkey.

MTCT&W

CW30

For research purposes only.

In the next thirty minutes, you are to write the most interesting and exciting story you can think of about one of the topics listed below. Try to write legibly but do not worry too much about your writing, spelling, and the like. Instead, try to put into your story as many good ideas as you can think of. Choose from any of the following topics:

1. The teacher who doesn't talk.
2. The hen that crows.
3. The dog that won't fight.
4. The flying monkey.
5. The boy who wants to be a nurse.
6. The girl who wants to be an engineer.
7. The cat that likes to swim.
8. The woman who swears like a sailor.
9. The man who wears lipstick.
10. The cow that brays like a donkey.

MTCT&W

CW45

For research purposes only.

In the next forty-five minutes, you are to write the most interesting and exciting story you can think of about one of the topics listed below. Try to write legibly but do not worry too much about your writing, spelling, and the like. Instead, try to put into your story as many good ideas as you can think of. Choose from any of the following topics:

1. The teacher who doesn't talk.
2. The hen that crows.
3. The dog that won't fight.
4. The flying monkey.
5. The boy who wants to be a nurse.
6. The girl who wants to be an engineer.
7. The cat that likes to swim.
8. The woman who swears like a sailor.
9. The man who wears lipstick.
10. The cow that brays like a donkey.

CREATIVE WRITING WORKSHEET

Name _____ Sex _____ Title _____

1. Organization

Subtotal _____

1-1. Balance 0 1

1-2. Arrangement 0 1

1-3. Consistency 0 1

1-4. Conciseness 0 1

1-5. Clarity 0 1
2. Sensitivity

Subtotal _____

2-1. Stimulus perception . . 0 1

2-2. Association 0 1

2-3. Relevancy of ideas . . . 0 1

2-4. Specificity 0 1

2-5. Empathy 0 1
3. Originality

Subtotal _____

3-1. Choice of topic 0 1

3-2. Ideas 0 1

3-3. Organization 0 1

3-4. Style of writing 0 1

3-5. Sense of humor 0 1
4. Imagination

Subtotal _____

4-1. Imagination 0 1

4-2. Fantasy 0 1

4-3. Abstraction 0 1

4-4. Identification 0 1

4-5. Reasoning 0 1
5. Psychological Insight

Subtotal _____

5-1. Causal explanation . . . 0 1

5-2. Perspective 0 1

5-3. Meaningfulness 0 1

5-4. Ego-involvement 0 1

5-5. Understanding 0 1
6. Richness

Subtotal _____

6-1. Expression 0 1

6-2. Ideas 0 1

6-3. Emotion 0 1

6-4. Curiosity 0 1

6-5. Fluency 0 1

TOTAL SCORE _____

THE TESTING SCHEDULE

Tests to be Administered: STEP Writing and MTCTW (creative writing)

Participating Schools and Teachers:

<u>Braemar</u>	<u>Hazeldean</u>
Miss Lammie	Miss Simmons
Mr. Geake	Mr. Stauffer
Mrs. Wyman	Mrs. Hogg
Mr. Eichelt	Mr. Inscho

	Monday, June 26	Wednesday, June 28
9:00	Group B Creative writing in library	Group C Creative writing in library
10:00	Group A Creative writing in library	Group A Creative writing in library
11:00	Group C Creative writing in library	Group B Creative writing in library
	NOON	
1:45	STEP Writing Part I in home rooms	STEP Writing Part I in home rooms
3:00	STEP Writing Part II in home rooms	STEP Writing Part II in home rooms

NUMBER OF STUDENTS COMPRISING EACH CREATIVE
WRITING GROUP ACCORDING TO SCHOOL

Creative Writing Group	SCHOOLS		Total
	Braemar	Hazeldean	
A	33	34	67
B	36	33	69
C	40	31	71
TOTAL	109	98	207

RAW SCORES FOR ALL STUDENTS

On the following pages, the scores obtained by pupils on the various tests are listed. The symbols heading each column are to be interpreted as follows:

- Column 1: ID - identification number
- Column 2: IQ - Lorge-Thorndike Intelligence Tests score
- Column 3: STEP - STEP Writing test raw score
- Column 4: CW - Creative writing total score from the MTCTW
- Column 5: T - treatment group A, B or C (given as 1, 2 or 3)
- Column 6: VIQ - verbal score from the Lorge-Thorndike Tests
- Column 7: NVIQ - non-verbal score from Lorge-Thorndike
- Column 8: CA - chronological age in months
- Column 9: STEP CONV - STEP Writing Test converted score
- Column 10: CW SUB - MTCTW creative writing subtest subscores
(see the creative writing score sheet)
- Column 11: SCH - school attended (1, Braemar; 2, Hazeldean)
- Column 12: TR - classroom teacher
- Column 13: SEX - male or female code (1, female; 2, male)
- Column 14: CP - continuous progress placement (1, accelerated;
2, high average; 3, low average; 4, decelerated)
- Column 15: S - topic or story chosen (see choice on creative writing test)

ID	IQ	STEP	CW	T	VIQ	NVIQ	CA	STEP CONV	CW	SUB	SCH	TR	SEX	C	S
001	106	35	18	2	104	107	144	260	4	1	3	2	1	3	3
002	127	47	25	2	118	135	142	277	4	4	2	5	1	2	9
003	106	41	21	2	108	103	147	268	4	0	4	5	1	3	3
004	122	50	23	2	122	122	142	282	4	4	4	3	1	2	5
005	108	44	22	1	107	109	145	273	4	2	3	4	1	3	3
006	111	48	23	3	112	110	147	278	4	4	4	3	1	2	5
007	104	36	20	1	111	096	152	261	4	4	3	1	1	3	4
008	128	47	20	1	138	118	137	277	3	5	3	3	1	2	7
009	110	38	20	1	108	111	145	264	4	3	3	2	1	3	0
010	107	38	14	3	120	094	139	264	2	0	3	1	1	3	5
011	120	51	20	3	113	127	141	284	4	4	2	3	1	2	1
012	115	46	20	1	112	117	149	275	3	4	2	3	1	2	1
013	109	38	20	2	103	114	146	264	4	2	3	3	1	3	1
014	119	44	16	3	122	115	141	273	2	3	2	3	1	2	5
015	115	44	24	3	120	109	147	273	4	4	3	4	1	2	1
016	110	40	21	3	112	108	138	266	4	5	2	2	2	2	9
017	118	43	16	3	122	113	142	271	3	4	1	2	2	2	1
018	108	29	14	2	117	099	144	253	3	2	2	0	2	3	7
019	126	50	22	3	130	121	147	282	4	5	3	3	2	2	8
020	116	40	14	1	119	112	145	266	3	3	1	1	2	2	8
021	122	45	20	2	124	120	138	274	5	4	3	2	2	2	4
022	106	22	18	2	102	110	149	244	1	4	4	3	2	3	2
023	132	47	22	3	138	127	147	277	4	5	3	3	2	2	6
024	120	52	18	1	115	124	140	286	3	2	3	3	2	2	4
025	106	30	16	2	111	101	140	254	3	3	2	2	2	2	5
026	098	19	12	1	101	095	138	239	4	2	2	1	2	3	5
027	128	52	23	1	126	130	146	286	5	4	4	3	2	3	4
028	113	39	17	1	111	114	140	265	2	2	3	4	2	2	7
029	121	47	20	1	122	120	141	277	5	4	2	3	2	3	4
030	106	43	17	1	108	104	139	271	3	3	2	2	2	3	2

ID	IQ	STEP	CW	T	VIQ	NVIQ	CA	STEP CONV		CW	SUB		SCH	TR	SEX	C	S
031	110	42	13	2	104	131	142	269	2	3	2	2	1	2	1	3	9
032	115	57	14	3	124	105	149	305	2	3	2	2	1	2	1	2	7
033	129	51	22	1	131	126	130	284	5	4	2	2	1	2	1	1	4
034	082	17	20	3	077	086	161	235	5	4	3	3	1	2	1	4	4
035	101	30	13	3	098	104	156	254	3	3	2	2	1	2	1	3	1
036	110	38	13	3	108	111	147	264	2	1	2	1	1	2	1	3	7
037	108	29	18	1	114	102	145	253	3	3	3	3	1	2	1	3	0
038	120	47	17	3	123	117	133	277	3	4	2	3	1	2	1	1	9
039	129	49	17	1	131	126	130	280	4	2	4	3	1	2	1	1	9
040	110	42	15	3	107	112	146	269	3	3	2	2	1	2	1	3	9
041	102	36	22	2	103	101	144	261	5	5	3	2	1	2	1	3	5
042	124	43	25	1	129	118	127	271	5	5	4	4	1	2	1	1	0
043	107	26	08	1	105	108	145	249	2	0	1	2	1	2	2	3	7
044	115	38	17	1	118	111	147	264	5	2	2	2	1	2	2	3	3
045	105	31	14	3	110	099	139	255	5	3	2	1	1	2	2	3	4
046	109	38	17	3	107	111	157	264	5	2	3	1	1	2	2	3	7
047	103	42	17	2	099	106	160	269	5	4	1	2	1	2	2	3	3
048	119	47	17	2	121	117	144	277	5	3	2	2	1	2	2	3	3
049	111	35	20	3	111	110	157	260	5	4	3	2	1	2	2	3	4
050	117	38	18	3	117	117	140	264	5	4	2	1	1	2	2	2	3
051	127	50	16	2	124	123	133	282	5	3	2	2	1	2	2	1	1
052	128	51	20	3	133	127	130	284	5	4	5	2	1	2	2	1	5
053	118	42	17	2	113	123	135	269	4	4	1	2	1	2	2	1	4
054	115	44	14	3	103	127	138	273	3	4	1	2	1	2	2	3	4
055	119	35	22	2	108	130	139	260	5	4	3	4	1	2	2	3	4
056	129	46	18	1	128	130	146	275	5	4	5	2	1	2	2	1	8
057	137	54	23	3	145	128	129	291	4	4	4	4	1	2	2	1	1
058	104	46	19	2	112	096	145	275	5	3	3	1	1	3	1	3	1
059	111	40	17	2	108	114	146	266	4	3	4	2	1	3	1	2	0
060	117	41	25	3	120	113	143	268	5	5	4	3	1	3	1	3	4

ID	IQ	STEP	CW	T	VIQ	NVIQ	CA	STEP CONV		CW	SUB		SCH	TR	SEX	C	S
061	111	41	17	3	110	111	146	268	4	3	1	3	1	3	1	2	1
062	119	54	20	2	121	116	143	291	5	4	2	3	2	8	1	2	1
063	108	45	15	1	103	113	150	274	5	1	2	2	1	3	1	3	9
064	122	50	18	2	119	125	142	282	3	2	4	3	1	3	1	2	1
065	129	51	22	3	143	115	142	284	5	3	5	3	1	3	1	2	9
066	129	49	20	3	127	130	139	280	5	3	1	3	1	3	1	2	7
067	124	48	21	3	129	118	146	278	5	4	3	2	1	3	1	2	9
068	129	49	24	1	133	124	146	280	5	4	5	2	1	3	1	2	9
069	109	33	14	3	110	108	140	258	4	2	3	0	1	3	2	3	4
070	108	43	13	1	108	108	139	271	4	2	1	2	1	3	2	3	3
071	125	48	18	2	137	113	139	278	5	4	1	2	1	3	2	2	4
072	111	47	08	1	109	112	143	277	3	1	3	0	1	3	2	2	9
073	114	38	19	3	117	111	146	264	4	4	2	3	1	3	2	3	4
074	114	40	17	3	128	101	156	266	4	4	1	3	1	3	2	3	2
075	122	52	13	2	136	108	139	286	4	2	2	2	1	3	2	2	4
076	119	28	09	1	123	115	137	250	4	2	0	2	1	3	2	3	3
077	109	33	15	1	115	097	147	258	4	2	2	2	1	3	2	2	6
078	110	37	17	2	110	110	148	262	4	2	2	2	1	3	2	3	4
079	111	47	17	3	110	111	153	277	4	1	3	4	1	3	2	3	4
080	107	28	12	2	101	113	142	251	4	1	0	3	1	3	2	3	3
081	124	34	13	3	120	117	142	259	3	3	1	1	1	3	2	2	4
082	125	43	18	3	130	120	141	271	5	4	2	3	1	3	2	2	4
083	110	44	13	2	107	112	141	273	5	3	0	2	1	3	2	2	4
084	095	41	13	1	106	084	155	268	4	2	1	2	1	4	1	4	1
085	112	46	17	2	119	105	145	275	4	4	3	2	1	4	1	2	8
086	117	47	17	3	132	101	149	277	5	3	2	1	1	4	1	2	5
087	111	50	15	3	116	106	153	282	3	3	2	2	1	4	1	3	6
088	100	33	10	1	107	092	160	258	3	3	0	1	1	4	1	4	1
090	095	39	13	3	081	109	160	265	4	2	1	3	1	4	1	4	3

ID	IQ	STEP	CW	T	VIQ	NVIQ	CA	STEP CONV		CW	SUB		SCH	TR	SEX	C	S
091	109	43	13	1	105	113	143	271	5	2	1	0	4	1	1	2	1
092	110	48	13	3	105	115	150	278	4	2	1	1	1	1	1	4	5
093	127	48	16	1	136	118	142	278	4	4	2	1	1	1	1	2	9
094	110	52	18	3	106	113	138	286	5	4	2	1	3	3	1	2	9
095	117	46	21	1	127	107	144	275	5	5	3	4	2	2	1	2	9
096	118	53	16	3	108	127	144	288	3	3	1	3	3	3	1	2	7
097	117	43	15	2	115	119	142	271	3	4	2	2	2	2	1	2	1
098	122	51	12	2	132	112	145	284	4	2	1	1	1	1	1	2	1
099	128	52	20	2	118	137	144	286	4	4	3	4	3	2	2	2	7
100	113	20	10	2	117	109	147	241	4	1	2	1	2	0	2	3	8
101	104	25	10	1	104	104	150	248	4	2	1	0	2	1	2	4	1
102	109	39	11	1	109	108	141	265	3	2	1	2	2	1	2	2	4
103	121	45	17	2	124	117	145	274	4	4	2	2	3	2	2	2	4
104	117	44	13	2	126	107	149	273	5	3	2	2	2	1	2	2	4
105	114	32	19	2	118	110	157	257	4	4	3	3	2	2	2	4	4
106	118	36	18	3	125	111	132	261	4	4	3	3	2	1	2	3	5
107	115	40	14	2	116	113	141	266	5	3	2	2	1	1	2	3	4
108	097	37	11	2	088	105	157	262	3	3	2	0	1	2	2	4	4
109	130	48	23	3	142	117	147	278	5	4	3	2	4	5	2	2	1
110	103	38	14	2	110	095	148	264	4	4	0	2	1	3	2	3	7
111	085	42	12	2	091	079	171	269	4	2	2	1	2	1	2	4	4
112	080	17	14	1	078	082	157	235	5	3	2	2	2	2	2	3	4
113	113	39	13	2	110	115	142	265	4	3	1	1	2	2	2	3	7
114	118	42	17	2	121	114	128	269	3	3	3	3	2	3	2	1	9
115	108	43	14	1	105	111	143	271	4	2	2	1	3	2	1	2	4
116	116	44	12	2	109	123	146	273	3	3	1	1	1	3	2	2	7
117	096	12	11	1	090	102	148	223	5	2	1	1	2	0	2	3	4
118	086	23	10	1	080	092	158	246	3	1	1	1	3	1	2	3	1
119	100	39	12	2	098	102	143	265	3	2	2	1	2	2	1	2	5
120	101	31	15	1	096	106	142	255	4	3	3	2	3	0	2	2	4

ID	IQ	STEP	CW	T	VIQ	NVIQ	CA	STEP CONV	CW	SUB	SCH	TR	SEX	C	S
121	107	36	18	2	109	104	141	261	3	4	1	4	2	2	1
122	124	46	17	2	120	128	139	275	4	2	3	3	2	2	4
123	113	39	16	3	110	115	137	265	5	3	1	2	2	1	3
124	102	44	10	3	093	111	143	273	3	1	1	2	2	3	3
125	101	40	12	2	108	093	137	266	5	2	0	1	2	3	1
126	101	37	15	3	091	110	145	262	3	3	2	2	2	3	4
127	113	44	18	3	115	111	146	273	4	3	5	2	2	2	7
128	108	51	15	1	109	107	141	284	4	3	1	3	2	2	3
129	099	49	16	2	091	107	143	280	5	2	3	1	2	3	7
130	115	48	15	2	112	117	133	278	5	2	1	2	2	1	3
131	088	22	14	1	085	091	169	244	5	2	1	2	2	4	7
132	103	17	19	3	103	103	128	235	5	4	3	2	2	3	9
133	117	48	21	2	125	108	147	278	5	4	2	3	2	2	3
134	123	47	22	3	123	122	140	277	5	5	3	3	2	2	3
135	108	43	19	2	103	112	146	271	5	2	4	2	2	2	9
136	103	38	19	3	100	106	136	264	5	4	2	2	2	2	3
137	114	41	18	1	102	126	147	268	5	4	1	3	2	2	3
138	116	51	21	2	120	111	131	284	5	4	4	3	2	1	2
139	097	43	21	2	094	099	154	271	5	5	2	3	3	3	4
140	101	34	22	2			148	259	5	5	2	4	2	3	3
141	088	42	16	1	085	090	154	269	5	3	2	2	2	3	1
142	088	18	14	3	083	093	157	237	4	2	2	2	2	3	8
143	096	39	16	3	099	093	145	265	5	4	2	2	2	2	8
144	098	26	16	1	096	100	162	249	5	3	3	1	2	3	1
145	102	44	18	1	114	089	142	273	5	4	2	2	2	2	9
146	120	36	15	3	110	130	139	261	4	3	2	1	2	2	0
147	091	38	15	1	092	089	146	264	4	3	0	3	2	3	9
148	104	32	13	1	105	103	140	257	5	3	1	2	2	3	1
149	120	44	20	3	112	128	143	273	4	5	3	2	2	3	5
150	106	22	16	1	111	101	146	244	5	2	1	3	2	3	7

ID	IQ	STEP	CW	T	VIQ	NVIQ	CA	STEP CONV		CW	SUB		SCH	TR	SEX	C	S
151	134	40	16	1	135	133	137	266	5	2	4	1	2	6	2	2	7
152	104	44	18	2	093	115	143	273	5	4	2	2	2	6	1	3	4
153	121	46	12	2	107	134	146	275	4	3	0	1	2	6	2	3	7
154	104	40	15	3	101	107	146	266	3	3	2	2	2	6	2	2	1
155	130	37	13	2	122	137	134	262	4	3	1	1	2	6	2	2	1
156	095	16	17	3	103	086	144	233	5	3	1	2	2	6	1	3	9
157	118	37	12	3	114	121	140	262	3	3	1	2	2	6	2	3	7
158	126	39	12	1	121	139	145	265	4	2	1	2	2	6	2	2	1
159	107	38	17	1	105	108	147	264	5	3	1	3	2	6	2	2	1
160	106	29	06	2	106	106	146	253	3	1	1	0	2	6	2	3	1
161	107	39	16	1	113	101	139	265	5	3	3	2	2	6	1	2	4
162	103	26	15	3	101	105	149	249	4	3	2	2	2	6	2	3	1
163	113	45	18	1	115	111	145	274	5	4	2	2	2	6	1	2	5
164	114	31	18	1	115	112	140	255	3	4	5	2	2	6	2	3	5
165	119	33	13	2	111	126	144	258	4	3	0	2	2	6	1	3	3
166	121	47	18	2	110	131	138	277	5	3	2	2	2	6	1	2	9
167	100	40	17	3	105	095	145	266	4	4	3	1	2	6	2	3	4
168	107	35	16	1	105	109	145	260	5	3	1	2	2	6	1	3	6
169	107	30	12	2	100	113	141	254	4	4	1	1	2	6	2	3	7
170	111	41	13	1	114	108	133	273	5	3	1	1	2	8	1	1	6
171	101	36	20	3	094	108	161	261	5	4	3	1	2	7	1	4	7
172	104	43	15	1	111	097	148	271	5	4	1	1	2	7	2	2	4
173	119	42	21	2	126	111	145	269	5	4	4	3	2	7	2	2	4
174	127	50	14	3	131	122	128	282	3	3	1	2	2	7	1	1	5
175	116	45	16	3	112	119	145	274	5	4	0	2	2	7	2	2	4
176	109	47	20	2	116	101	147	277	5	4	4	3	2	7	1	2	9
177	115	48	17	1	111	119	144	278	5	4	2	2	2	7	2	2	0
178	122	52	15	2	120	124	150	286	5	4	2	2	2	7	2	3	5
179	116	26	18	1	110	122	148	249	5	4	1	4	2	7	1	3	9
180	114	47	13	1	108	119	142	277	5	3	1	1	2	7	1	2	9

ID	IQ	STEP	CW	T	VIQ	NVIQ	CA	STEP CONV	CW	SUB	C	SCH	TR	SEX	C	S
181	121	44	13	3	122	120	138	273	4	2	1	2	7	2	2	7
182	120	45	20	2	118	122	141	274	5	4	2	2	7	1	2	5
183	113	51	13	1	107	119	145	281	4	3	0	2	7	2	2	4
184	085	29	16	3	082	088	170	253	4	4	2	2	7	2	3	4
185	110	44	23	3	102	117	145	273	5	3	5	3	7	1	3	8
186	119	56	24	2	126	112	144	299	5	5	3	2	7	1	2	5
187	102	31	10	1	110	094	140	255	3	2	1	2	7	2	3	4
188	120	43	14	2	116	124	147	271	4	5	2	2	7	2	2	9
189	113	46	18	3	110	116	138	275	5	2	4	2	7	2	3	8
190	108	44	19	3	112	103	141	273	5	4	4	2	7	2	3	8
191	123	49	13	1	118	128	132	280	4	2	2	2	7	1	1	9
192	106	41	15	2	094	118	150	268	4	3	3	2	7	2	3	9
193	112	53	17	2	112	112	147	288	5	4	3	2	7	1	2	5
194	107	38	12	1	099	115	139	264	4	2	1	2	7	1	3	9
195	100	44	16	3	094	106	144	273	5	3	2	2	7	2	3	8
196	109	49	16	3	115	102	145	280	4	3	3	2	7	1	2	9
197	120	47	17	3			136	277	5	3	4	2	7	2	1	9
198	114	54	18	1			148	291	5	3	2	2	7	1	2	9
199	123	40	17	3	123	122	141	266	4	4	1	2	8	2	2	3
200	101	37	11	1	090	112	142	262	3	2	1	2	8	2	3	4
201	116	48	15	1	109	123	146	278	5	3	2	2	8	1	2	6
202	104	45	20	2	098	110	147	274	5	5	3	2	8	1	2	0
203	126	53	18	1	124	128	142	288	5	3	3	2	8	1	2	9
204	114	31	17	2	108	119	137	255	4	2	4	2	8	2	2	8
205	112	54	18	3	110	114	145	291	5	4	2	2	8	1	2	3
206	102	34	18	3	100	104	136	259	5	4	1	2	8	2	2	3
207	100	37	20	2	099	101	144	262	4	5	3	2	8	2	3	4

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